



Impact Mole

Requirements and Best Practices

Prepared by
Virginia State Corporation Commission
Division of Utility and Railroad Safety

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General Practices

- Follow all applicable portions of the State Corporation Commission's Rule 20VAC5-309-150. *Requirement for Trenchless Excavation* as well as the requirements for *Private Sewer Laterals and Sewer Systems* in § 56-265.19:1.
- Prior to setting up any bore operation, pothole all applicable utilities using the State Corporation Commission's Division of Utility and Railroad Safety's Exposing Underground Utility Lines Requirements and Best Practices (Hand Digging Best Practices).
- Steerable mole units and mole units equipped with radio transmitting sondes are preferred if available. (Radio sondes are more effective when fitted to the front of the unit.)
- Limit the use of an impact mole according to soil conditions on the site, the proximity to existing utilities, other impediments, and type of installation.
- Give special consideration to water and sewer systems within the area.

General Practices

Note: The following may assist in determining the location of water systems that cannot be accurately located:

- Review ticket responses received from the notification center to see if water operators have been notified;
- Attempt to contact the homeowner/developer for water location information;
- Perform a visual site inspection. Look for clear evidence such as old marks, water meters, valve boxes, etc.;
- Try to locate service entrance and exit points at building to determine route;
- Be aware of patches in pavement that could indicate where water utilities had been previously uncovered;

General Practices

- Attempt to locate unmarked facility services using available equipment;
- Physically verify the location of the facility service; and
- Consult the operator of unmarked water facility for additional assistance.

General Practices

Note: When you can reasonably conclude that a private sewer lateral may be impacted by the use of trenchless technology for the installation or maintenance of gas or electric utility lines based upon visual evidence, knowledge of the proposed excavation site or other available information the following steps must be taken:

- Review information provided by the private sewer lateral owner or sewer system operator;
- Meet with the sewer system operator on-site, if the sewer system operator has additional information to provide about the location of private sewer laterals; or
- Conduct a visual inspection of the proposed excavation site in an effort to determine the probable path of the sewer lateral.

General Practices

Additionally, excavators utilizing trenchless technology are encouraged to use the following best practices to prevent or mitigate damage to sewer laterals:

- Prior to excavation, conduct a thorough site inspection of the excavation area checking for unmarked sewer laterals and any sewer cleanouts or sewer lateral tracer wire;
- If any evidence of a sewer lateral, such as a cleanout, is discovered, the excavator shall make a reasonable attempt to determine if a tracer wire for the lateral exists;
- If a tracer wire exists, use the tracer wire to locate the sewer lateral with locating equipment;

General Practices

- If a tracer wire does not exist, use any evidence and other information provided by the private sewer lateral owner and the sewer operator to determine the path of the sewer lateral and plan excavation so as to eliminate or minimize conflict with the lateral;
- In the event a sewer lateral cannot be located, trenchless technologies shall not be used in the excavation area;
- In the event the property is served by a septic or similar private sewer system the excavator shall work with the property owner to determine its location and protect those lines; and
- Other locating methods such as ground penetrating radar, cameras, fish tapes, sondes, or hand digging may be used to locate the lateral.

Setting up an Impact Mole

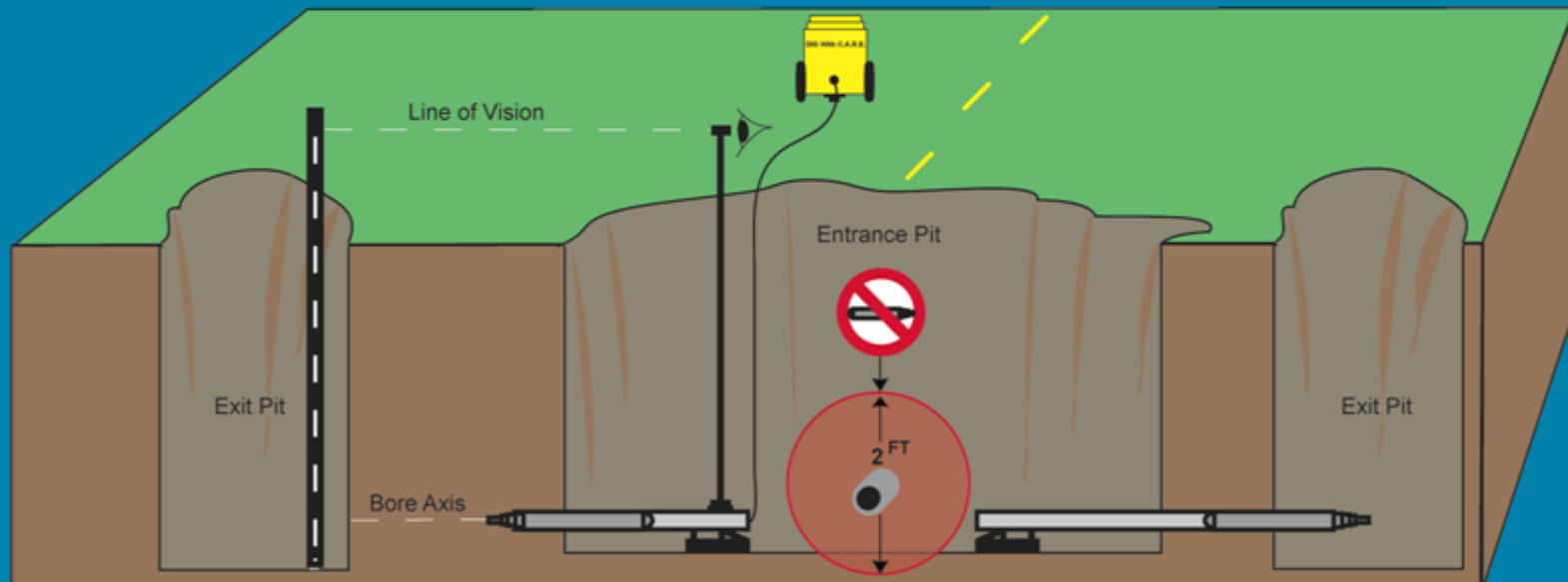
- Always follow the manufacture's guidelines for setting up and operating your make and model of impact mole (also referred to as missile bores).
- The maximum distance between launch pits and reception pits should not exceed the manufacturer's specifications, or the known limit of control of the device.
- The recommended working depth of the mole should be at least 10 times the diameter of the mole unit, considering the known depth of existing utility lines.
- Use a launch cradle during set up.
- Use a sighting telescope in the launch pit and a ranging rod in the reception pit to establish the initial line of the bore path and ensure horizontal accuracy. This step should be repeated half way through the mole insertion.

During Impact Mole Operation

- Visually check the mole unit as it passes through potholes, and exit pits.
- Provide proper support and protection for all exposed utility lines.
- Take all reasonable actions to maintain the direction and location of the mole unit and monitor the length of hose used. If at any time during the bore, the location of the mole is unknown, cease boring activity until the location of the mole can be determined, and the mole can be recovered by hand or soft excavation.

Perpendicular Bores

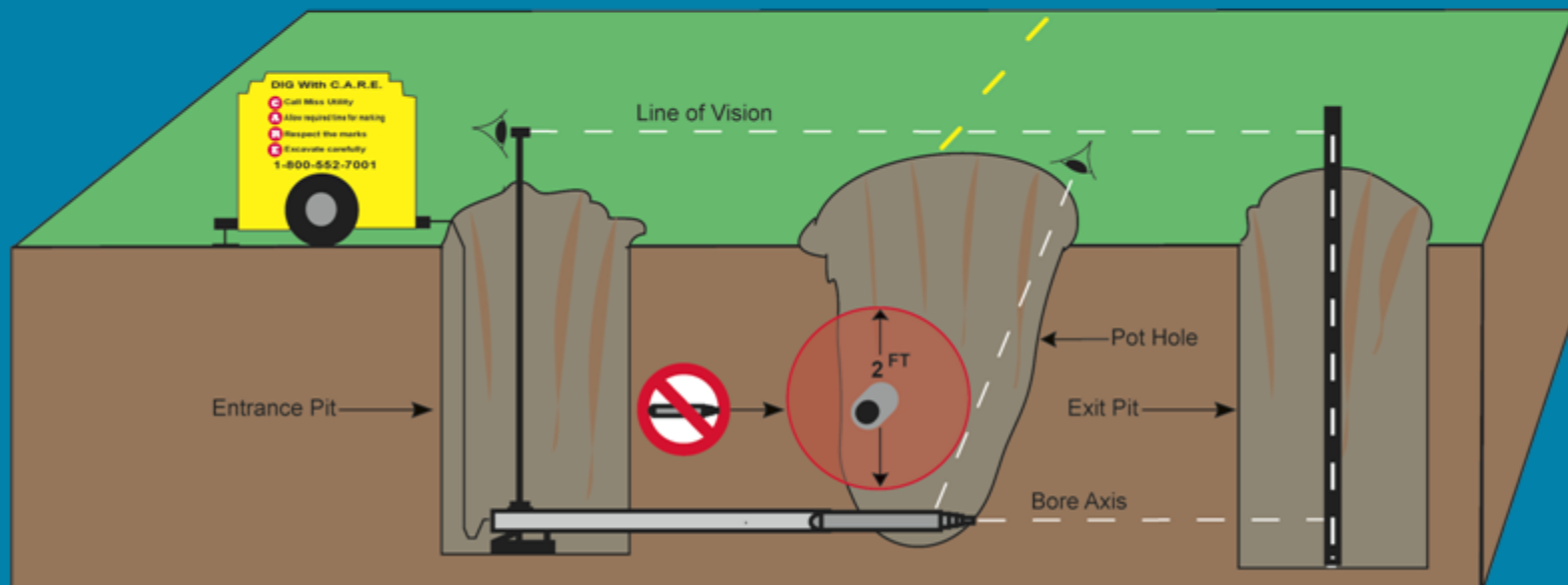
- Maintain a two foot clearance zone from exposed utility lines and bore away from exposed utility line when possible.



Note: Illustration is not to scale.

Perpendicular Bores

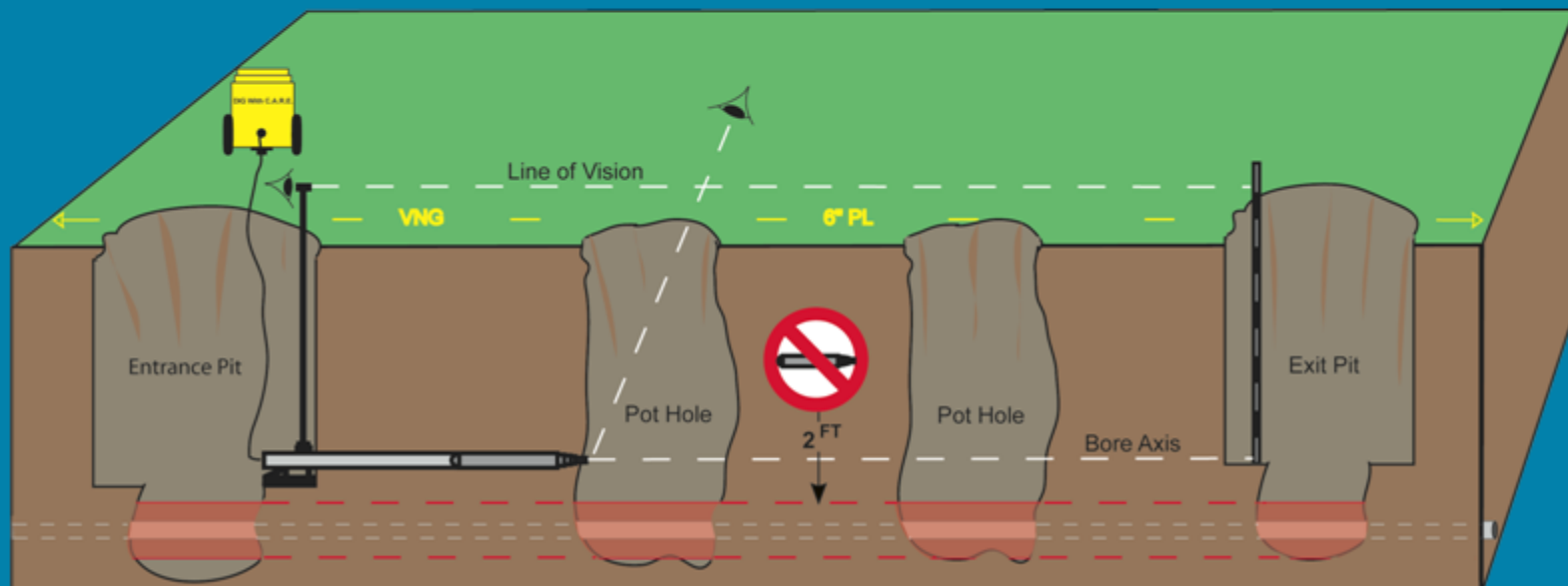
- If boring away from exposed utility lines is not possible, maintain a two foot clearance zone between existing utility lines and the mole unit during the bore operation.
- Visually check the mole unit as it passes through potholes, and exit pits.



Note: Illustration is not to scale.

Parallel Bores

- Pothole existing utility lines following the Hand Digging Best Practices at reasonable distances along the direction of the bore path to ensure the location of the utility lines before commencing the bore.
- Maintain a two foot clearance zone between existing utility lines and the mole unit during the bore operation.



Note: Illustration is not to scale.



The End